

REMARKS

Claims 5-8 have been canceled. Claims 9, 11, 12, 15 and 18 have been amended. No new matter has been added. New claims 19-22 have been added. Support for new claim 19 may be found on the bottom of page 9 and the top of page 10 that describes corresponding FIG. 4. Support for new claim 20 may be found on the middle of page 8. Support for new claims 21 and 22 may be found on the top of page 9. No new matter has been added. Claims 9-22 are currently pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

OJBECTIONS TO CLAIMS 5-8, 15 AND 16 UNDER 35 U.S.C. 102

Page 2 of the Action sets forth claim objections for claims 5-8, 15 and 16. Specifically, claims 15 and 16 are objected to because certain parameters were not defined in the claims. In response, claim 15 has been amended to define the parameters. Support may be found in the specification from the middle to the bottom of page 10. No new matter has been added. Claims 5-8 are objected to as they depend on a cancelled claim. In response, claims 5-8 have been cancelled. It is respectfully submitted that pending claims now have overcome the objections presented by the Action. It is respectfully requested that the objection to the claims be withdrawn.

REJECTION OF CLAIMS 9-11 and 13 UNDER 35 U.S.C. 102

Claims 9-11 and 13 are rejected under 35 U.S.C. 102(e) for the reasons set forth on page 2-4 of the Action. Specifically, claims 9-11 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kathman et al. (U.S. Pat. No. 6,496,621 B1), which is hereinafter referred to as the Kathman reference.

The rejections under 35 U.S.C. 102(e) are respectfully traversed, at least insofar as applied to the amended and new claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth herein below.

The Federal Circuit has ruled, “Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. . . . In addition, the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public.” Akzo N.V. v. United States Int’l Trade Comm’n, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987).

Furthermore, the Federal Circuit has held, “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” W.L. Gore & Assocs. v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

It is respectfully submitted that the Kathman reference fails to teach or suggest the optical module as claimed. Specifically, the Kathman reference fails to teach or suggest inter alia the following claim limitation:

“surface function includes a first phase function that includes a first m value combined with a second phase function that includes a second m value; wherein the first m value and the second m value are selectively adjustable to control launch conditions and manage reflections,” as claimed in claim 9.

Regarding claims 9-13 and 18, pages 2-4 of the Action cites element 10 and 14 of FIG. 1, elements 12, 14 and 30 of FIG. 3, col. 3, lines 9-20, col. 4, lines 59-60, col. 5, lines 25-49, 55, 58, 63-65, of Kathman as teaching the claimed invention.

However, it is respectfully submitted that Kathman does not fairly teach a first phase function that includes a first m value, a second phase function that includes a second m value,

wherein the first m value of the first phase function and the second m value are selectively adjustable to control launch conditions and manage reflections. The invention, as claimed, identifies a first m value and a second m value as important parameters that can be adjusted to control factors such as launch conditions and reflection management. This critical teaching is missing from Kathman.

Kathman at best disclosed a single phase function (equation 2) that includes a single m value. However, even then, the value is fixed at $m=3$. There is no teaching that this value may be adjusted to control launch conditions and reflection management. The Action cites the first term of equation 3 as teaching the second phase function as claimed. However, it appears that the first term of equation 3 of Kathman (which is cited on page 6 of the Action) is dependent on both wavelength (λ) of light and the focal length (f) (see Kathman, col. 4, lines 40 to 47). The second phase function, as claimed, does not have a dependency on wavelength and the focal length. Accordingly, it is respectfully submitted that the first term of equation 3 is very different from and does not fairly teach or suggest the second phase function as claimed.

The Action also cites col. 5, line 55 as teaching the second phase function as claimed. However, it is respectfully submitted that “the combination of a lens function having radially symmetric terms with a negative axicon function” is not the same and does not fairly teach a second phase function having a second m value as claimed. First, the only lens function disclosed in Kathman is the first term of equation 3. Second, this first term does not have any m value. As advanced previously, the only m value disclosed by Kathman is in equation 2, and this value appears to be fixed at $m=3$ (the spiral mode).

Furthermore, even if “a lens function having radially symmetric terms with a negative axicon function” (col. 5, lines 55) fairly teaches the second phase function, which is not

conceded, Kathman fails to disclose an expression for the second phase function that includes a second m value and further fails to disclose that the first and second m values can be adjusted and utilized to control factors such as launch conditions and reflection management as claimed. For example, Kathman seems more concerned with the placement of the phase matching coupler 12 with respect to the end of the fiber to reduce feedback (see col. 5, lines 26-49).

The dependent claims incorporate all the limitations of the independent claim. In this regard, the dependent claims 10-22 also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

Regarding new claim 19, the Kathman reference does not fairly teach or suggest, “wherein the cone phase function includes a cross section that is one of a generally concave profile, a generally triangular cross-section, a generally convex profile, an inverted generally concave profile, an inverted generally triangular cross-section, and an inverted generally convex profile.”

Regarding new claim 20, the Kathman reference does not fairly teach or suggest, “wherein the values of m_S and m_C are selectively adjustable to control factors that include one of coupling efficiency, misalignment tolerances, and the amount of feedback.” As advanced previously, the only m value mentioned in Kathman is “ m ” for equation 2 (col. 4, line 45). Furthermore, it appears that Kathman selects and fixes this number with $m=3$ (the spiral mode) (see, col. 4, lines 39-49). There is no teaching of a second m value as claimed. Moreover, the first term for equation 3 does not have any m value component. If this rejection is maintained for this claim, it is respectfully requested that the next Action specify a particular section of Kathman that teaches this claimed limitation.

Regarding new claim 21, the Kathman reference does not fairly teach or suggest, “wherein the values of m_S and m_C are selectively adjustable to suit the requirements of a particular optical application.” As advanced previously, with respect to claim 21, Kathman at best discloses a single m value and does not fairly teach two m values. In this regard, Kathman does not fairly teach adjusting the two different m values to meet the requirements of a particular optical application as claimed.

Regarding new claim 21, the Kathman reference fails to fairly teach “the third phase function includes one of a lens phase function, an aberration control phase function, a prism phase function, and a grating phase function.” For example, the Kathman reference does not teach or suggest that the third phase function can be an aberration control phase function, a prism phase function, and a grating phase function as claimed in claim 21. Since element 30 of Kathman is described as a lens function, it cannot at the same time be the second phase function and a third phase function as claimed in 21.

In view of the foregoing, it is respectfully submitted that the Kathman reference fails to teach or suggest the optical module as claimed. Accordingly, it is respectfully requested that the claim rejections under 35 U.S.C. section 102(e) be withdrawn.

REJECTION OF CLAIMS 14-16 UNDER 35 U.S.C. 103

Claims 14-16 are rejected under 35 U.S.C. 103(a) for the reasons set on pages 4-5 of the Action. Specifically, claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kathman.

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the new and amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

Dependent claims 10-22 incorporate all the limitations of the independent claim 9. Furthermore, the dependent claims 10-18 also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

It is respectfully submitted that Kathman, whether alone or in combination, fails to teach or suggest the invention as claimed. For example, dependent claim 15 recites specific expressions for the first phase function and the second phase function that includes the first m value and the second m value. Dependent claim 16 recites specific values of m_s and m_c .

Kathman fails to fairly teach or suggest these specific expressions. For example, equation 2 and equation 3 of Kathman at best only disclosed the first phase function as claimed. However, page 5 of the Action states in paragraphs 1 and 1 that “the particular parameters, which describe the second phase function, do not serve as a basis for patentability as they can be achieved by routine experimentation.” Further, the Action continues “it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to arrive at such parameters.”

Applicant respectfully disagrees with this position. First, Kathman does not disclose the “general conditions of the claim.” For example, as advanced previously, the expression given by Kathman for the lens function is very different from the second phase function as claimed. Furthermore, the invention as claimed, does not simply “discover an optimum or workable ranges of values.” Instead, the invention as claimed, not only teaches expressions for the first and second phase function, but also identifies specific parameters in these expressions (e.g., a first m value and a second m value) that can be adjusted to control factors, such as launch conditions and reflection management. These critical teachings are neither taught nor suggested by Kathman. It is respectfully submitted that the expression for the second phase function and the identification of the use of the first and second m values to

control factors, such as launch conditions and reflection management would not be achieved by routine experimentation.

Furthermore, there is no teaching or suggestion in the cited prior art (in Kathman, for example) of combining a first and second phase function as claimed. It is only with a strained interpretation that the teachings of the present invention are distilled from the Kathman reference. Second, there is no teaching in Kathman of the specific equations claimed in claim 15. Accordingly, it is respectfully submitted that one skilled in the art at the time the invention was made would not have been able to arrive at the invention as claimed, unless they had the teachings of the present invention.

The Federal Circuit has held, “It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” (quoting In re Fine, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988)), In re Fritch, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992).

It is respectfully submitted that the claimed invention has been improperly used as an instruction manual or “template” to piece together the teachings of the Kathman reference so that the claimed invention is rendered obvious. Accordingly, it is respectfully requested that the claim rejections under 35 U.S.C. section 103(a) be withdrawn.

DOUBLE PATENTING

Claims 9-18 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as claims 9-18 of co-pending Application No. 09/739,531 for the reasons set on pages 5-6 of the Action. The double patenting rejection is provisional since the conflicting

claims have not in fact been patented. In response, claims 9-18 of co-pending Application No. 09/739,531 have been canceled. Accordingly, it is respectfully requested that the provisional double patenting rejection be withdrawn.

Conclusion

For all the reasons advanced above, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance is earnestly solicited at an early date. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,



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Dated: April 8, 2004

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April 8, 2004
(Date)